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RAW SEQUENCE LISTING

PATENT APPLICATION: US/10/826,324

DATE: 09/17/2004

TIME: 11:47:08

Input Set : N:\Crf3\RULE60\10826324.raw.txt

Output Set: N:\CRF4\09172004\J826324.raw

1 <110> APPLICANT: Bruce D. Weintraub
 2 Mariusz W. Szkudlinski
 3 University of Maryland
 4 <120> TITLE OF INVENTION: CYSTINE KNOT GROWTH FACTOR MUTANTS
 5 <130> FILE REFERENCE: UOFMD.003C1
 6 <140> CURRENT APPLICATION NUMBER: US/10/826,324
 7 <141> CURRENT FILING DATE: 2004-04-19
 8 <150> PRIOR APPLICATION NUMBER: US/09/813,398
 9 <151> PRIOR FILING DATE: 2001-03-20
 10 <150> PRIOR APPLICATION NUMBER: PCT/US99/05908
 11 <151> PRIOR FILING DATE: 1999-03-19
 12 <150> PRIOR APPLICATION NUMBER: PCT/US98/19772
 13 <151> PRIOR FILING DATE: 1998-09-22
 14 <160> NUMBER OF SEQ ID NOS: 41
 15 <170> SOFTWARE: FastSEQ for Windows Version 4.0
 17 <210> SEQ ID NO: 1
 18 <211> LENGTH: 93
 19 <212> TYPE: PRT
 20 <213> ORGANISM: HOMO SAPIEN
 21 <400> SEQUENCE: 1
 22 Pro Ala Pro Asp Val Gln Asp Cys Pro Glu Cys Thr Leu Gln Glu Asn
 23 1 5 10 15
 24 Pro Phe Phe Ser Gln Pro Gly Ala Pro Ile Leu Gln Cys Met Gly Cys
 25 20 25 30
 26 Cys Phe Ser Arg Ala Tyr Pro Thr Pro Leu Arg Ser Lys Lys Thr Met
 27 35 40 45
 28 Leu Val Gln Lys Asn Val Thr Ser Glu Ser Thr Cys Cys Val Ala Lys
 29 50 55 60
 30 Ser Tyr Asn Arg Val Thr Val Met Gly Gly Phe Lys Val Glu Asn His
 31 65 70 75 80
 32 Thr Ala Cys His Cys Ser Thr Cys Tyr Tyr His Lys Ser
 33 85 90
 35 <210> SEQ ID NO: 2
 36 <211> LENGTH: 119
 37 <212> TYPE: PRT
 38 <213> ORGANISM: HOMO SAPIEN
 39 <400> SEQUENCE: 2
 40 Pro Phe Cys Ile Pro Thr Glu Tyr Thr Met His Ile Glu Arg Arg Glu
 41 1 5 10 15
 42 Cys Ala Tyr Cys Leu Thr Ile Asn Thr Thr Ile Cys Ala Gly Tyr Cys
 43 20 25 30
 44 Met Thr Arg Asp Ile Asn Gly Lys Leu Phe Leu Pro Lys Tyr Ala Leu
 45 35 40 45



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46 Ser Gln Asp Val Cys Thr Tyr Arg Asp Phe Ile Tyr Arg Thr Val Glu
47 50 55 60
48 Ile Pro Gly Cys Pro Leu His Val Ala Pro Tyr Phe Ser Tyr Pro Val
49 65 70 75 80
50 Ala Leu Ser Cys Lys Cys Gly Lys Cys Asn Thr Asp Tyr Ser Asp Cys
51 85 90 95
52 Ile His Glu Ala Ile Lys Thr Asn Tyr Cys Thr Lys Pro Gln Lys Ser
53 100 105 110
54 Tyr Leu Val Gly Phe Ser Val
55 115
57 <210> SEQ ID NO: 3
58 <211> LENGTH: 141
59 <212> TYPE: PRT
60 <213> ORGANISM: HOMO SAPIEN
61 <400> SEQUENCE: 3
62 Pro Ser Lys Glu Pro Leu Arg Pro Arg Cys Arg Pro Ile Asn Ala Thr
63 1 5 10 15
64 Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr
65 20 25 30
66 Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Thr Arg Val Leu Gln Gly
67 35 40 45
68 Val Leu Pro Ala Leu Pro Gln Val Val Cys Asn Tyr Arg Asp Val Arg
69 50 55 60
70 Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asn Pro Val
71 65 70 75 80
72 Val Ser Tyr Ala Val Ala Leu Ser Cys Gln Cys Ala Leu Cys Arg Arg
73 85 90 95
74 Ser Thr Thr Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp
75 100 105 110
76 Asp Pro Arg Phe Gln Asp Ser Ser Ser Ser Lys Ala Pro Pro Pro Ser
77 115 120 125
78 Leu Pro Ser Pro Ser Arg Leu Pro Gly Pro Ser Asp Thr
79 130 135 140
81 <210> SEQ ID NO: 4
82 <211> LENGTH: 122
83 <212> TYPE: PRT
84 <213> ORGANISM: HOMO SAPIEN
85 <400> SEQUENCE: 4
86 Pro Ser Arg Glu Pro Leu Arg Pro Trp Cys His Pro Ile Asn Ala Ile
87 1 5 10 15
88 Leu Ala Val Glu Lys Glu Gly Cys Pro Val Cys Ile Thr Val Asn Thr
89 20 25 30
90 Thr Ile Cys Ala Gly Tyr Cys Pro Thr Met Met Arg Val Leu Gln Ala
91 35 40 45
92 Val Leu Pro Pro Leu Pro Gln Val Val Cys Thr Tyr Arg Asp Val Arg
93 50 55 60
94 Phe Glu Ser Ile Arg Leu Pro Gly Cys Pro Arg Gly Val Asp Pro Val
95 65 70 75 80
96 Val Ser Phe Pro Val Ala Leu Ser Cys Arg Cys Gly Pro Cys Arg Arg

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97          85          90          95
98      Ser Thr Ser Asp Cys Gly Gly Pro Lys Asp His Pro Leu Thr Cys Asp
99          100          105          110
100      His Pro Gln Leu Ser Gly Leu Leu Phe Leu
101          115          120
103 <210> SEQ ID NO: 5
104 <211> LENGTH: 110
105 <212> TYPE: PRT
106 <213> ORGANISM: HOMO SAPIEN
107 <400> SEQUENCE: 5
108      Pro Asn Ser Cys Glu Leu Thr Asn Ile Thr Ile Ala Ile Glu Lys Glu
109      1          5          10          15
110      Glu Cys Arg Phe Cys Ile Ser Ile Asn Thr Thr Trp Cys Ala Gly Tyr
111          20          25          30
112      Cys Tyr Thr Arg Asp Leu Val Tyr Lys Asp Pro Ala Arg Pro Lys Ile
113          35          40          45
114      Thr Cys Thr Phe Lys Glu Leu Val Tyr Glu Thr Val Arg Val Pro Gly
115          50          55          60
116      Cys Ala His His Ala Asp Ser Leu Tyr Thr Tyr Pro Val Ala Thr Gln
117          65          70          75          80
118      Cys His Cys Gly Lys Cys Asp Ser Asp Ser Thr Asp Cys Thr Val Arg
119          85          90          95
120      Gly Leu Gly Pro Ser Tyr Cys Ser Phe Gly Glu Met Lys Glu
121          100          105          110
123 <210> SEQ ID NO: 6
124 <211> LENGTH: 126
125 <212> TYPE: PRT
126 <213> ORGANISM: HOMO SAPIEN
127 <400> SEQUENCE: 6
128      Pro Ser Ile Glu Glu Ala Val Pro Ala Val Cys Lys Thr Arg Thr Val
129      1          5          10          15
130      Ile Tyr Glu Ile Pro Arg Ser Gln Val Asp Pro Thr Ser Ala Asn Phe
131          20          25          30
132      Leu Ile Trp Pro Pro Cys Val Glu Val Lys Arg Cys Thr Gly Cys Cys
133          35          40          45
134      Asn Thr Ser Ser Val Lys Cys Gln Pro Ser Arg Val His His Arg Ser
135          50          55          60
136      Val Lys Val Ala Lys Val Glu Tyr Val Arg Lys Lys Pro Lys Leu Lys
137          65          70          75          80
138      Glu Val Gln Val Arg Leu Glu Glu His Leu Glu Cys Ala Cys Ala Thr
139          85          90          95
140      Thr Ser Leu Asn Pro Asp Tyr Arg Glu Asp Thr Gly Arg Pro Arg
141          100          105          110
142      Glu Ser Gly Lys Lys Arg Lys Arg Lys Arg Leu Lys Pro Thr
143          115          120          125
145 <210> SEQ ID NO: 7
146 <211> LENGTH: 161
147 <212> TYPE: PRT
148 <213> ORGANISM: HOMO SAPIEN

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Input Set : N:\Crif3\RULE60\10826324.raw.txt

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149 <400> SEQUENCE: 7
150   Pro Ser Leu Gly Ser Leu Thr Ile Ala Glu Pro Ala Met Ile Ala Glu
151       1           5           10           15
152   Cys Lys Thr Arg Thr Glu Val Phe Glu Ile Ser Arg Arg Leu Ile Asp
153           20           25           30
154   Arg Thr Asn Ala Asn Phe Leu Val Trp Pro Pro Cys Val Glu Val Gln
155           35           40           45
156   Arg Cys Ser Gly Cys Cys Asn Asn Arg Asn Val Gln Cys Arg Pro Thr
157       50           55           60
158   Gln Val Gln Leu Arg Pro Val Gln Val Arg Lys Ile Glu Ile Val Arg
159       65           70           75           80
160   Lys Lys Pro Ile Phe Lys Lys Ala Thr Val Thr Leu Glu Asp His Leu
161           85           90           95
162   Ala Cys Lys Cys Glu Thr Val Ala Ala Ala Arg Pro Val Thr Arg Ser
163           100          105          110
164   Pro Gly Gly Ser Gln Glu Gln Arg Ala Lys Thr Pro Gln Thr Arg Val
165       115          120          125
166   Thr Ile Arg Thr Val Arg Val Arg Arg Pro Pro Lys Gly Lys His Arg
167       130          135          140
168   Lys Phe Lys His Thr His Asp Lys Thr Ala Leu Lys Glu Thr Leu Gly
169       145          150          155          160
170   Ala

172 <210> SEQ ID NO: 8
173 <211> LENGTH: 190
174 <212> TYPE: PRT
175 <213> ORGANISM: HOMO SAPIEN
176 <400> SEQUENCE: 8
177   Pro Ala Pro Met Ala Glu Gly Gly Gly Gln Asn His His Glu Val Val
178       1           5           10           15
179   Lys Phe Met Asp Val Tyr Gln Arg Ser Tyr Cys His Pro Ile Glu Thr
180           20           25           30
181   Leu Val Asp Ile Phe Gln Glu Tyr Pro Asp Glu Ile Glu Tyr Ile Phe
182           35           40           45
183   Lys Pro Ser Cys Val Pro Leu Met Arg Cys Gly Gly Cys Cys Asn Asp
184       50           55           60
185   Glu Gly Leu Glu Cys Val Pro Thr Glu Glu Ser Asn Ile Thr Met Gln
186       65           70           75           80
187   Ile Met Arg Ile Lys Pro His Gln Gly Gln His Ile Gly Glu Met Ser
188           85           90           95
189   Phe Leu Gln His Asn Lys Cys Glu Cys Arg Pro Lys Lys Asp Arg Ala
190           100          105          110
191   Arg Gln Glu Lys Lys Ser Val Arg Gly Lys Gly Lys Gly Gln Lys Arg
192       115          120          125
193   Lys Arg Lys Lys Ser Arg Tyr Lys Ser Trp Ser Val Pro Cys Gly Pro
194       130          135          140
195   Cys Ser Glu Arg Arg Lys His Leu Phe Val Gln Asp Pro Gln Thr Cys
196       145          150          155          160
197   Lys Cys Ser Cys Lys Asn Thr Asp Ser Arg Cys Lys Ala Arg Gln Leu
198           165          170          175

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199      Glu Leu Asn Glu Arg Thr Cys Arg Cys Asp Lys Pro Arg Arg
200              180              185              190
202 <210> SEQ ID NO: 9
203 <211> LENGTH: 121
204 <212> TYPE: PRT
205 <213> ORGANISM: HOMO SAPIEN
206 <400> SEQUENCE: 9
207      Pro Ser Ser Ser His Pro Ile Phe His Arg Gly Glu Phe Ser Val Cys
208              1              5              10              15
209      Asp Ser Val Ser Val Trp Val Gly Asp Lys Thr Thr Ala Thr Asp Ile
210              20              25              30
211      Lys Gly Lys Glu Val Met Val Leu Gly Glu Val Asn Asn Ile Asn Ser
212              35              40              45
213      Val Phe Lys Gln Tyr Phe Phe Glu Thr Lys Cys Arg Asp Pro Asn Pro
214              50              55              60
215      Val Asp Ser Gly Cys Arg Gly Ile Asp Ser Lys His Trp Asn Ser Tyr
216      65              70              75              80
217      Cys Thr Thr Thr His Thr Phe Val Lys Ala Met Leu Thr Asp Gly Lys
218              85              90              95
219      Gln Ala Ala Trp Arg Phe Ile Arg Ile Asp Thr Ala Cys Val Cys Val
220              100              105              110
221      Leu Ser Arg Lys Ala Val Arg Arg Ala
222              115              120
224 <210> SEQ ID NO: 10
225 <211> LENGTH: 120
226 <212> TYPE: PRT
227 <213> ORGANISM: HOMO SAPIEN
228 <400> SEQUENCE: 10
229      Pro His Ser Asp Pro Ala Arg Arg Gly Glu Leu Ser Val Cys Asp Ser
230              1              5              10              15
231      Ile Ser Glu Trp Val Thr Ala Ala Asp Lys Lys Thr Ala Val Asp Met
232              20              25              30
233      Ser Gly Gly Thr Val Thr Val Leu Glu Lys Val Ser Pro Val Lys Gly
234              35              40              45
235      Gln Leu Lys Gln Tyr Phe Tyr Glu Thr Lys Cys Asn Pro Met Gly Tyr
236              50              55              60
237      Thr Lys Glu Gly Cys Arg Gly Ile Asp Lys Arg His Trp Asn Ser Gln
238      65              70              75              80
239      Cys Arg Thr Thr Gln Ser Tyr Val Arg Ala Met Leu Thr Asp Ser Lys
240              85              90              95
241      Lys Arg Ile Gly Trp Arg Phe Ile Arg Ile Asp Thr Ser Cys Val Cys
242              100              105              110
243      Ile Leu Thr Ile Lys Arg Gly Arg
244              115              120
246 <210> SEQ ID NO: 11
247 <211> LENGTH: 120
248 <212> TYPE: PRT
249 <213> ORGANISM: HOMO SAPIEN
250 <400> SEQUENCE: 11

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VERIFICATION SUMMARY

PATENT APPLICATION: **US/10/826,324**

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Input Set : **N:\Crf3\RULE60\10826324.raw.txt**

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